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IS 13332 (1992): Pesticide - Metribuzin, Technical [FAD 1: Pesticides and Pesticides Residue Analysis]

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भारतीय मानक

कीटनाशक – मेट्रीब्युजीन, तकनीकी – विशिष्टि

Indian Standard

PESTICIDE — METRIBUZIN, TECHNICAL — SPECIFICATION

UDC 632·951 MET

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

February 1992 **Price Group 1**

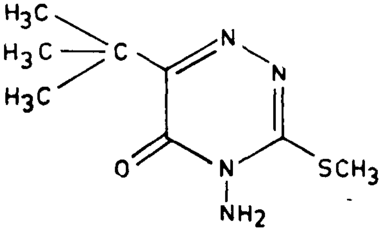
Pesticides Sectional Committee, FAD 1

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agriculture Division Council.

Metribuzin, technical is employed in the preparation of pesticidal formulations.

Metribuzin is the accepted common name by the International Organization for Standardization (ISO) for 4 - amino - 6 tertbutyl - 3 - (methylthio) - 1, 2, 4 - triazin - 5 (4H) - one. The empirical and structural formulae and molecular mass of metribuzin are given below:

Empirical Formula	*Structural Formula*	*Molecular Mass*
$C_8H_{14}N_4OS$		214·29

In the preparation of this standard, due consideration has been given to the provisions of the *Insecticides Act*, 1968 and the Rules framed thereunder. However, this standard is subjected to the restrictions imposed under the *Act* and Rules wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed, or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

PESTICIDE — METRIBUZIN, TECHNICAL — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for metribuzin, technical.

2 REFERENCES

The Indian Standards listed below are necessary adjuncts to this standard:

IS No.	*Title*
1070 : 1977	Water for general laboratory use (*second revision*)
6940 : 1982	Methods of test for pesticides and their formulations (*first revision*)
8069 : 1989	High density polyethylene (HDPE) woven sacks for packing pesticides (*second revision*)
8115 : 1976	Double hessian jute bags for pesticides
8817 : 1976	D. W. tarpaulin laminated jute bags for pesticides
8190 (Part 1) : 1988	Requirements for packing of pesticides : Part 1 Solid pesticides (*second revision*)
10946 : 1989	Methods of sampling for technical grade pesticides

3 REQUIREMENTS

3.1 Description

The material shall be in the form of white to off-white powder. It shall be free from extraneous impurities or added modifying agents.

3.2 The material shall also comply with the requirements given in Table 1.

4 PACKING

Material shall be packed in mild steel/double hessian jute bags (*see* IS 8115 : 1976, IS 8117 : 1976 and IS 8069 : 1989) having LDPE liners of thickness not less than 0·062 mm/3-layer sack kraft paper bags of 3×70 gsm having LDPE liners of thickness less than 0·062 mm. The container shall also comply with the requirements given under **2** of IS 8190 (Part 1) : 1988.

Table 1 Requirements for Metribuzin, Technical

(*Clause* 3.2)

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			Annex of this standard	Cl No. of IS 6940 : 1982
(1)	(2)	(3)	(4)	(5)
i)	Metribuzin content, percent by mass, *Min*	88·0	A	—
ii)	Melting point, °C	120-125	—	6
iii)	Material insoluble in acetone, percent by mass, *Max*	0·5	—	9
iv)	Water content, percent by mass, *Max*	1·0	—	4·2
v)	Acidity (as H_2SO_4), percent by mass, *Max*	1·0	—	11·3

5 MARKING

The containers shall bear legibly and indelibly the following information in addition to any other information as requirements under the *Insecticides Act*, 1968 and Rules framed thereunder:

a) Name of the material;
b) Indication of the source of manufacture;
c) Date of manufacture and date of expiry;
d) Batch number;
e) Metribuzin content, percent (*m/m*);
f) Net mass of contents; and
g) The minimum cautionary notice as worded in the *Insecticides Act*, 1968 and Rules framed thereunder.

6 SAMPLING

Representative samples of the material shall be drawn as prescribed in IS 10946 : 1984.

7 TESTS

7.1 Tests shall be carried out by the methods referred to in col 4 and 5 of Table 1.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070 : 1977) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

[*Clause* 3.2 and *Table* 1, *Sl No.* (i)]

DETERMINATION OF METRIBUZIN CONTENT

A-1 PRINCIPLE

Metribuzin content is estimated on a gas chromatograph using a flame ionization detector. Dibutyl sebacate is used as internal standard.

A-2 APPARATUS

A-2.1 Microlitre Syringe, 5 - 10 μl capacity.

A-2.2 Gas Chromatograph (GLC)

The instrument is equipped with a flame ionization detector and may be coupled to a printer-plotter *cum* integrator. The operative parameters are suggested below, which can be changed, in any other instrument employed, provided standardization is done:

Column — Glass, 183 cm length and 3 mm ID packed with 10 percent OV 17 on Chromosorb WHP (100 - 120 mesh)

Temperatures

Column oven — 210°C
Injection port — 250°C
Detector — 300°C

Gases and Corresponding Flow Rates

Nitrogen (carrier) — 20 ml per minute
Hydrogen — 30 ml per minute
Air — 350 ml per minute

A-3 REAGENTS

A-3.1 Acetone, AR grade.

A-3.2 Internal Standard Solution, dibutyl sebacate, AR grade.

A-3.3 Metribuzin Reference Standard, of known purity.

A-4 PROCEDURE

A-4.1 Preparation of Internal Standard Solution

Weigh accurately 3·0 g dibutyl sebacate in a 100-ml volumetric flask and make up the volume with acetone. Shake well to homogenize.

A-4.2 Preparation of Reference Standard Solution

Weigh accurately 0·25 g metribuzin reference standard in a 50-ml volumetric flask and add to it 5 ml of internal standard solution and finally make up the volume with acetone. Shake well to homogenize.

A-4.3 Preparation of Sample Solution

Weigh accurately a quantity of the sample equivalent to 0·25-0·27 g of metribuzin in a 50-ml volumetric flask, add to it 5 ml of internal standard solution and finally make up the volume with acetone. Shake well to homogenize.

A-4.4 Determination

Inject 2 μl reference standard solution into the gas chromatograph with the help of a microlitre syringe. From the integrator, print out and note the peak areas of internal standard and metribuzin. Similarly, inject the same volume of sample solution and note down the peak areas. Compute the percentage of metribuzin content in the sample.

A-5 CALCULATION

$$\text{Metribuzin content, percent by mass} = \frac{M_1 \times A_3 \times A_2}{M_2 \times A_4 \times A_1} \times P$$

where

M_1 = Mass, in g, of standard metribuzin in reference standard solution;
A_3 = Peak area of internal standard in the reference standard solution injected;
A_2 = Peak area of metribuzin in the sample solution injected;
P = Percent purity of metribuzin reference standard;
M_2 = Mass, in g, of sample taken for the test;
A_4 = Peak area of internal standard in the sample solution injected; and
A_1 = Peak area of metribuzin in the reference standard solution injected;

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